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EXAMINER

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ART UNIT PAPER NUMBER

2817

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Please find below and/or attached an Office communication concerning this application or proceeding.



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The disclosure is objected to because of the following informalities: Page 1, note that it is unclear whether the subheadings "FIELD OF THE INVENTION" and "BACKGROUND OF THE INVENTION" are properly located as indicated with respect to the first paragraph.

Clarification is needed. Page 1, line 11, note that "on" should be rewritten as --by-- for clarity of description. Page 2, line 11, note that "the very high dimensioning precision" needs to be rephrased. Page 3, line 17, note that "it sets up" should be rephrased for clarity; line 29, note that "The or each" should be rephrased for clarity of description. Page 9, line 7, note that reference to the "latter" needs to clarify which feature is intended. Note that reference labels (26, 28) need to be explicitly described relative to "Figure 2" for consistency of description. Appropriate correction is required.

Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, note that parameter "N" needs to be strictly defined in the claim.

In claims 2, 5, 7, 8, 11, 12, 13, 14, 16, 17, note that "it ..." needs to be clarified as to the feature intended by "it".

In claims 4, 8, 9, 10, 15, 16, 17, note that "one of the chips" and "one or more MMIC chips" are respectively vague in meaning since only one "chip" has been strictly defined in claim 1.

In claims 4, 9, 10, note that it is unclear how "a ratio N" relates to the parameter "N" as defined by claim 1. Clarification is needed.

In claims 5, 11, 12, 13, note that it is unclear how “the outside and the inside” relates to the “interior” and “exterior” as recited in claim 1. Clarification is needed.

In claims 5, 7, 14, note that “the line end” and “the microstrip line end” lack strict antecedent basis.

In claim 6, note that “the conductive cover” lacks strict antecedent basis in claim 1. Moreover, it is unclear if the “quarter wavelength” is properly associated with “the working frequency”. Clarification is needed.

In claims 8, 15, 16, 17, note that it is unclear which one “chip” is intended by the recitation of “one of the chips” and “this chip”. Clarification is needed. Note that it is unclear how “a contactless electromagnetic transition” as recited herein relates to the “port with transition by contactless electromagnetic coupling” (e.g. same as, different from, etc). Clarification is needed.

In claims 9, 10, note that “the main working frequency” lacks strict antecedent basis.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al in view of Sokolov.

Hung et al (fig. 3) discloses a waveguide to microstrip transition comprising: a hermetically sealed package including an MMIC chip (110) disposed within the package; a dielectric substrate (e.g. 102) supporting a microstrip line (112) and a ground plane (e.g. 216) on opposing surfaces of the dielectric (e.g. ceramic) substrate to function as a contactless transition between the MMIC chip and a waveguide (e.g. 234) at a first port thereof. Also, as evident from fig. 3 and fig. 1, note that the MMIC chip is also electrically connected to a microstrip line (122) on another substrate (e.g. 228, 230) at a second port. Moreover, note that the microstrip to waveguide transition, the MMIC chip and the microstrip line are respectively disposed on a metal base (202, 210, 212, 214, 216) with an opening in the metal base facing an open end of the microstrip line (112). Furthermore, note that a cover (204) is disposed over the contactless transition at a distance, which provides for short circuit reflection of signals propagating from the waveguide (i.e. a quarter wavelength distance, as known to those of ordinary skill in the art). As described at col 3, l. 46, the hermetically sealed microwave package operates over a frequency range between 20 to 100 GHz). However, Hung et al differs from the claimed invention in that it does not disclose that the MMIC chip functions as a frequency converting device for signals coupled to the MMIC chip.

Sokolov (e.g. Figs. 1, 2) discloses an MMIC module including a frequency convertor (e.g. frequency doubler 130) associated with corresponding MMIC chips (e.g. 214, 216, 218 as

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depicted in fig. 2). Also, note that the MMIC chips are coupled to a waveguide through a transition port (e.g. 145A in fig. 1). Moreover, such a circuit operates at frequencies on the order of 110GHZ (e.g. col 1, l. 50).

Accordingly, it would have been obvious in view of the references, taken as a whole, to have modified the MMIC chip of Hung et al to have included an MMIC circuit, such as taught by Sokolov. Such a modification would have been considered an obvious substitution of art recognized MMIC chip circuits, especially since the generic nature of the MMIC chip in Hung et al would have suggested that any equivalent and compatible MMIC chip circuit (e.g. Sokolov) would have been usable therewith. Moreover, note that such a obvious modification would have imparted the advantageous benefit of imparting frequency conversion properties to a like structure from the same field of endeavor (i.e. both references pertain to MMIC chip circuits which transition to a waveguide), and as such would have suggested the obviousness of such a modification. Moreover, note that in view of the frequency doubling aspect of the MMIC chip, such a circuit would necessarily operate as a frequency halver, in view of the reciprocal nature of such a circuit, as would have been known to those of ordinary skill in the art.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wedeen et al and Nagata et al both pertain of MMIC chip to waveguide transitions.

Note that for the Information Disclosure Statement (IDS) filed 10 May 2006, the foreign patent document and non-patent literature have not been considered (i.e. citations lined through in applicants' PTOL-1449 of 10 May 2006) since no copies of such documents have been

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provided. Also, US Patent No. 6040739 has also been lined through since it has already been cited in the examiners citation of prior art (e.g. see PTO-892).

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

B. Lee

  
BENNY T. LEE  
PRIMARY EXAMINER  
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